

## CLAIMS

What is claimed is:

1. A method of identifying an intestinal polyp comprising the steps of:
  - a) obtaining a nucleic acid sample derived from intestinal tissue; and
  - 5 b) determining a gene expression profile from a gene expression product of at least one informative gene having increased expression in an intestinal polyp relative to a control,  
wherein increased expression of said gene in said sample is indicative of an intestinal polyp.
- 10 2. A method according to Claim 1, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.
3. A method according to Claim 1, wherein the nucleic acid sample derived from intestinal tissue is derived from upper intestinal tissue or colonic tissue.
4. A method according to Claim 1, wherein the gene expression product is DNA.
- 15 5. A method according to Claim 1, wherein the gene expression product is mRNA.
6. A method according to Claim 4, wherein the gene expression profile is determined utilizing specific hybridization probes.
7. A method according to Claim 5, wherein the gene expression profile is determined utilizing specific hybridization probes.

8. A method according to Claim 6, wherein the gene expression profile is determined utilizing oligonucleotide microarrays.
9. A method according to Claim 7, wherein the gene expression profile is determined using oligonucleotide microarrays.
- 5 10. A method according to Claim 1, wherein the gene expression product is a polypeptide.
11. A method according to Claim 10, wherein the gene expression profile is determined utilizing antibodies.
- 10 12. A method according to Claim 1, wherein one or more informative genes is selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.
13. A method according to Claim 1, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.
- 15 14. A method of identifying an intestinal polyp comprising the steps of:
  - a) obtaining a polypeptide sample derived from intestinal tissue; and
  - b) determining a gene expression profile from a gene expression product of at least one informative gene having increased expression in an intestinal polyp relative to a control, said gene expression product being a
- 20 polypeptide,  
wherein increased expression of said gene expression product in said sample is indicative of an intestinal polyp.

15. A method according to Claim 14, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.
16. A method according to Claim 14, wherein the polypeptide sample derived from intestinal tissue is derived from upper intestinal tissue or colonic tissue.
- 5 17. A method according to Claim 14, wherein the gene expression profile is determined utilizing antibodies.
18. A method according to Claim 14, wherein one or more informative genes is selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and  
10 inflammation genes.
19. A method according to Claim 14, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.
20. A method of identifying an intestinal polyp comprising the steps of:
  - a) obtaining a nucleic acid sample derived from intestinal tissue; and
  - 15 b) determining a gene expression profile from a gene expression product of at least one informative gene having decreased expression in an intestinal polyp relative to a control,wherein decreased expression of said gene in said sample is indicative of an intestinal polyp.
- 20 21. A method according to Claim 20, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.

22. A method according to Claim 20, wherein the nucleic acid sample derived from intestinal tissue is derived from upper intestinal tissue or colonic tissue.
23. A method according to Claim 20, wherein the gene expression product is DNA.
24. A method according to Claim 20, wherein the gene expression product is mRNA.
25. A method according to Claim 23, wherein the gene expression profile is determined utilizing specific hybridization probes.
26. A method according to Claim 24, wherein the gene expression profile is determined utilizing specific hybridization probes.
27. A method according to Claim 25, wherein the gene expression profile is determined utilizing oligonucleotide microarrays.
28. A method according to Claim 26, wherein the gene expression profile is determined using oligonucleotide microarrays.
29. A method according to Claim 20, wherein the gene expression product is a polypeptide.
30. A method according to Claim 29, wherein the gene expression profile is determined utilizing antibodies.
31. A method according to Claim 20, wherein one or more informative genes is selected from the group consisting of apoptosis genes, cell cycle genes, tumor

suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.

32. A method according to Claim 20, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.

5 33. A method of identifying an intestinal polyp comprising the steps of:  
a) obtaining a polypeptide sample derived from intestinal tissue; and  
b) determining a gene expression profile from a gene expression product of  
at least one informative gene having decreased expression in an intestinal  
polyp relative to a control, said gene expression product being a  
10 polypeptide,

wherein decreased expression of said gene expression product in said sample is indicative of an intestinal polyp.

34. A method according to Claim 33, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.

15 35. A method according to Claim 33, wherein the polypeptide sample derived from intestinal tissue is derived from upper intestinal tissue or colonic tissue.

36. A method according to Claim 33, wherein the gene expression profile is determined utilizing antibodies.

20 37. A method according to Claim 33, wherein one or more informative genes is selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.

38. A method according to Claim 33, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.
39. A method of identifying a compound for use in modulating intestinal polyp development, said method comprising the steps of:
- 5           a) providing a cell or cell lysate sample;
- b) contacting the cell or cell lysate sample with a candidate compound; and
- c) detecting an increase in expression of at least one informative gene having decreased expression in an intestinal polyp, wherein
- 10           a candidate compound that increases the expression of said informative gene is a compound for use in modulating intestinal polyp development.
40. The method of Claim 39, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.
- 15 41. A method according to Claim 39, wherein the cell or cell lysate sample is derived from intestinal tissue.
42. A method according to Claim 41, wherein the intestinal tissue is derived from upper intestinal tissue or colonic tissue.
43. A method according to Claim 39, wherein the cell or cell lysate sample is
- 20           derived from a cultured cell.
44. A method according to Claim 39, wherein gene expression is determined by assessing the DNA level of said gene.

45. A method according to Claim 39, wherein gene expression is determined by assessing the mRNA level of said gene.
46. A method according to Claim 44, wherein gene expression is determined utilizing specific hybridization probes.
- 5 47. A method according to Claim 45, wherein gene expression is determined utilizing specific hybridization probes.
48. A method according to Claim 46, wherein gene expression is determined utilizing oligonucleotide microarrays.
- 10 49. A method according to Claim 47, wherein gene expression is determined using oligonucleotide microarrays.
50. A method according to Claim 39, wherein gene expression is determined by assessing the polypeptide level encoded by said gene.
51. A method according to Claim 50, wherein said gene expression is determined utilizing antibodies.
- 15 52. A method according to Claim 39, wherein one or more informative genes is selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.
- 20 53. A method according to Claim 39, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.

54. A method of identifying a compound for use in modulating intestinal polyp development, said method comprising the steps of:
- 5           a) providing a cell or cell lysate sample;
- b) contacting the cell or cell lysate sample with a candidate compound; and
- c) detecting a decrease in expression of at least one informative gene having increased expression in an intestinal polyp, wherein a candidate compound that decreases the expression of said informative gene is a compound for use in modulating intestinal polyp development.
- 10
55. A method according to Claim 54, wherein the intestinal polyp is an upper intestinal polyp or a colonic polyp.
56. A method according to Claim 54, wherein the cell or cell lysate sample is derived from intestinal tissue.
- 15 57. A method according to Claim 56, wherein the intestinal tissue is derived from upper intestinal tissue or colonic tissue.
58. A method according to Claim 54, wherein the cell or cell lysate sample is derived from a cultured cell.
59. A method according to Claim 54, wherein gene expression is determined by assessing the DNA level of said gene.
- 20
60. A method according to Claim 54, wherein gene expression is determined by assessing the mRNA level of said gene.



61. A method according to Claim 59, wherein gene expression is determined utilizing specific hybridization probes.
62. A method according to Claim 60, wherein gene expression is determined utilizing specific hybridization probes.
- 5 63. A method according to Claim 61, wherein gene expression is determined utilizing oligonucleotide microarrays.
64. A method according to Claim 62, wherein gene expression is determined using oligonucleotide microarrays.
65. A method according to Claim 54, wherein gene expression is determined by  
10 assessing the polypeptide level encoded by said gene.
66. A method according to Claim 65, wherein said gene expression is determined utilizing antibodies.
67. A method according to Claim 54, wherein one or more informative genes is  
15 selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.
68. A method according to Claim 54, wherein one or more informative genes is selected from the group consisting of the genes in Figures 1A-1U.
69. An oligonucleotide microarray having immobilized thereon a plurality of  
20 oligonucleotide probes specific for one or more informative genes selected from the group consisting of the genes on Figures 1A-1U.

70. An oligonucleotide microarray having immobilized thereon a plurality of oligonucleotide probes specific for one or more informative genes selected from the group consisting of apoptosis genes, cell cycle genes, tumor suppressor genes, cell adhesion genes, transcription related genes, and inflammation genes.
- 5